

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MASSACHUSETTS**

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FIREMAN'S FUND INSURANCE COMPANY	:	CIVIL ACTION NO.:
	:	04-11578 PBS
v.	:	
	:	
FIRE SYSTEMS, INC.;	:	
FIRE SUPPRESSION SYSTEMS OF	:	
NEW ENGLAND, INC.;	:	
PRO CON, INC.	:	
and	:	
PAQUETTE ELECTRIC COMPANY, INC.:	:	
Defendants	:	JANUARY 3, 2006

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**PLAINTIFF FIREMAN'S FUND INSURANCE COMPANY'S RULE 26(a)(2)(A)  
DISCLOSURE OF EXPERT WITNESS**

**NAME AND ADDRESS OF WITNESS**

Richard Papetti, P.E.  
Abvima Engineering  
62 Bay Road  
North Easton, MA 02356-1704

**SUBJECT MATTER ON WHICH THE EXPERT IS EXPECTED TO TESTIFY**

Mr. Papetti is expected to testify concerning his investigation and inspection of the Residence Inn, located at 181 Faunce Corner Road, North Dartmouth, Massachusetts, his review of the discovery produced in this litigation, and his opinion regarding the possible cause(s) of the January 19, 2003 freeze up.

**THE SUBSTANCE OF THE FACTS AND OPINIONS TO WHICH THE EXPERT IS  
EXPECTED TO TESTIFY**

Mr. Papetti is expected to testify that the cause of the January 19, 2003 freeze up was the entrapment and freezing of water in an incorrectly sloped section of the dry-pipe suppression system, coupled with the effective disabling of two alarm sensors and inadequate testing and examination of those sensors. Mr. Papetti's report is attached hereto.

**SUMMARY OF THE GROUNDS FOR EXPERT'S OPINION**

Mr. Zallen will testify based on his education and experience as a professional engineer, his inspections and examinations of the premises located at 181 Faunce Corner Road, North Dartmouth, Massachusetts, and his review of the various discovery material produced in this litigation.

**FIREMAN'S FUND INSURANCE COMPANY**  
By its attorneys,



Erik Loftus, Esquire (BBO# 656315)  
Law Offices of Stuart G. Blackburn  
Two Concorde Way  
P.O. Box 608  
Windsor Locks, CT 06096  
(860) 292-1116

Dated: January 3, 2006

FROM :Abvima Engineering, Inc.

FAX NO. :508-238-8440

c. 26 2005 08:33PM P2

# Abvima Engineering, Inc.

62 Bay Road  
North Easton, MA 02356-1704  
Telephone: (508) 238-1440  
Facsimile: (508) 238-8440

December 23, 2005

**Matter:**

Water Release from a Failed Sprinkler  
System Fitting

**Insured:**

Hodan Properties

**Loss Site:**

Residence Inn  
181 Faunce Corner  
North Dartmouth, MA 02747

DOL: January 19, 2003

Reference: Fireman's Fund Group

Claim No.: 03003858835

Abvima File No.: AVM-04-091

**FOURTH REPORT**

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**VIA USPS MAIL**

Mr. Erik Loftus, Esq.  
Law Offices of Stuart G. Blackburn  
Two Concorde Way  
P.O. Box 608  
Windsor Locks, CT 06096-0608

Dear Attorney Loftus:

At your request, an origin & cause investigation was continued with regard to a property loss of water damaged building contents and components as the result of a release of water from a failed sprinkler fitting of a dry-pipe sprinkler system at the above-referenced loss site. You have also requested an opinion based on the latest submitted information. Work from the last report includes a review of submittals, writing a list of deposition questions, telephone conversations, and this report.

Submittals reviewed include: deposition of Michael Zurowski (Paquette) and exhibits, deposition of Charlie Higgins (FSS) and exhibits, deposition of Jacinto M. Madeiros (FSS) and exhibits, deposition of John Palmer (FSI) and exhibits, deposition of Charles Barrett (FSI) and exhibits, documents provided by Paquette Electric, documents and video provided by Fire Suppression Systems (FSS), and documents provided by Fire Systems, Inc. (FSI).

The following potential causes for the loss can be considered.

(1) Water was left in all sections of the dry-pipe sprinkler system after the sprinkler system acceptance testing on May 17, 2002 by FSS. This cause is not probable because water in the sprinkler system would have been noticed by FSS when the dry-valve was reset by them following the acceptance testing. In addition, water in the sprinkler system would have also been noticed by FSI on November 20, 2002 when they examined the air and water pressure gauges of the dry-valve. Further, statements in the depositions indicate that the freeze-up of the sprinkler system was relatively localized with frozen lines and a single fitting failure occurring at one section of the sprinkler system. This

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is in contrast to the verbal report by FSS on the day of the site visit describing frozen sprinkler lines at various locations in the attic. If the sprinkler system were entirely filled with water, it is probable that failed fittings and frozen sprinkler lines would have occurred at other sections of the sprinkler system.

(2) Water was left in all sections of the dry-pipe sprinkler system after the dry-valve was tripped during testing of the dry-valve, the wet-valve, or their appurtenances in November 20, 2002 by FSI. FSI has denied testing the dry-valve on November 20, 2002. This cause is not probable because water in the sprinkler system would have been noticed by FSI on January 16, 2003 when they examined the air and water pressure gauges of the dry-valve. Further, statements in the depositions indicate that the freeze-up of the sprinkler system was relatively localized with frozen lines and a single failure occurring at one section of the sprinkler system. If the sprinkler system were entirely filled with water, it is probable that failed fittings and frozen sprinkler lines would have occurred at other sections of the sprinkler system.

(3) Water was left in all sections of the dry-pipe sprinkler system after the dry-valve was tripped during testing of the dry-valve, the wet-valve, or their appurtenances on January 16, 2003 by FSI. FSI has denied testing the dry-valve on January 16, 2003. This cause is not probable because statements in the depositions indicate that the freeze-up of the sprinkler system was relatively localized with frozen lines and a single failure occurring at one section of the sprinkler system. If the sprinkler system were entirely filled with water, it is probable that failed fittings and frozen sprinkler lines would have occurred at other sections of the sprinkler system.

(4) Water was left in one incorrectly sloped section of the dry-pipe sprinkler system after the system acceptance testing in May of 2002 by FSS. FSS claims that no incorrectly sloped lines were found when they made repairs to the sprinkler system. However, others lines of a sampling by others are reported to have had incorrect slopes after the time of the loss. The examined portion of the branch sprinkler line to which the failed fitting was attached was sloped adequately in the vicinity of the failed fitting, but was not correctly sloped upstream of that portion. There were no indications such as pipe hanger alterations that the slope of the line at the failed fitting had been corrected, but the sprinkler system was new and changes to the pipe hangers would not have been necessarily evident.

In lieu of the current information that the freeze-up of branch sprinkler lines was not evident at various locations in the attic (but only at one section), that the dry-valve "testing" by FSI was such that water was not purposely introduced into the sprinkler system during their two site visits (even though one section of their test data sheets indicated otherwise), and that the flow of water witnessed by the motel manager was probably from the testing of the wet-pipe sprinkler system (the test station water outlet of the dry-pipe sprinkler system is reported to be located in an interior room of the building), the probable cause of this loss is the entrapment and freezing of water in an incorrectly sloped section of a branch sprinkler line of the dry-pipe sprinkler system.

It may be argued that the weather in December of 2002 had days when the outside air temperature and presumably the temperature of the attic space were below the freeze point of water. Although the attic temperatures may have been cold, the particular fitting that failed may not have been cold enough for a long enough period of time to result in its freeze-up failure. The heat losses from the building below, especially if there were gaps in the insulation below, may have tempered freeze-up conditions at the line with entrapped water in it such that failure was prevented. However, the sprinkler line temperature on the day of the loss probably became low enough for a freeze-up failure to finally occur when the outside air temperature dropped to its lowest since the installation of the dry-pipe sprinkler system.

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It is possible to cause the dry-valve to trip by upsetting the air and water balance at the flapper of the dry-valve if care is not taken to open and close water supply valves slowly to avoid water hammer effects. It seems that if the dry-valve were accidentally tripped by a competent sprinkler system tester and he were in the valve room, the tripping of the dry-valve and the filling of the dry-pipe sprinkler system would have been audibly obvious. It would have been prudent to accept the testing error and to drain the sprinkler system rather than to ignore the potential for its freeze-up in the middle of the winter.

When repairs were made to the sprinkler system just after the loss, the low air pressure sensor and water flow sensor were found to be incorrectly wired such that each could not provide the alarm panel with a signal indicating the state of what each was intended to sense, that is, low air pressure and water flow respectively within the dry-pipe sprinkler system. At this point, it has not been determined how these sensors came to be improperly wired after the sprinkler system and alarm panel were tested and approved several months earlier.

Regardless, testing of the low air pressure sensor and the water flow sensor of the dry-pipe sprinkler system was not performed by FSI even though it was included within their scope of work and is recommended on a quarterly basis by the manufacturer of the devices and by the NFPA. These devices can be tested without introducing water into a dry-pipe sprinkler system. A visual examination of the exterior of the sensors was performed instead with no examination of the interior. An examination of the interior of a low air pressure sensor or a water flow sensor is not usually necessary when they are tested as the testing would reveal wiring problems. However, with the decision by FSI to forego the testing of these sensors, it would have been prudent, especially since it was their first time servicing the sprinkler system, to open the sensors and to examine their interiors for incorrect wiring, disconnected or loose wiring, corrosion, etc.

Testing or examination of these sensors would have revealed the low air pressure sensor and the flow sensor to be incorrectly wired such that each could not provide the alarm panel with a signal. The lack of sensor signals at the alarm panel resulted in the lack of audio and visual troubleshooting indications for the low pressure sensor and audio and visual alarm indications along with a signal to the local fire department for the water flow sensor. The effectively disabled low air pressure sensor thusly provided no notification to the building management of a lowering air pressure in the dry-pipe sprinkler system which could and did lead to an eventual tripping of the dry-valve. The effectively disabled water flow sensor thusly provided no notification to the building management and to the local fire department of the tripping and the consequential water flow into the dry-pipe sprinkler system.

If water were introduced into the dry-pipe sprinkler system by FSI during their last visit to the building, a low air pressure troubleshooting notification and a water flow notification would have allowed a fair amount of time to respond to an impending freeze-up of the introduced water and to a flow of water from the failed sprinkler fitting. If water were left in the sprinkler system by FSS, there probably still would have been time to respond to the flow of water from the failed fitting.

A noticeable flow of water from a sprinkler fitting that has failed because of a freeze-up does not always occur at the time of the fitting failure. Sometimes air is released at a failed fitting with little if any water release because ice impedes or nearly stops the flow of water through the sprinkler line and from the failed fitting. There are delays between the times of the initiation of the loss of air from a failed fitting, the activation of a low air pressure sensor, the tripping of a dry-valve, and a marked flow of water from a failed fitting. Depending upon changes in the outside air temperature and the building temperature, a marked flow of water from a failed sprinkler fitting will not occur until the frozen sprinkler line or sprinkler fitting has thawed sufficiently. The outside air temperatures in the afternoon on the day of the loss were relatively warmer (upper twenties) compared to those earlier that day (single

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Mr. Erik Loftus, Esq.  
December 23, 2005  
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digits) and to those of the previous day (near zero at night to upper teens during the day) which were at their coldest since the time when the dry-pipe sprinkler system was brought into service. The water leak from the failed sprinkler fitting in the attic space was noticed by a guest in the room below late in the afternoon on the day of the loss. The building management and local fire department were notified of a sprinkler system problem only after the guest activated a pull station in the hallway outside his room.

In conclusion and based upon current information, the probable cause of the water release from the failed sprinkler fitting is the entrapment and freezing of water in an incorrectly sloped section of a branch sprinkler line of the dry-pipe sprinkler system coupled with the effective disabling of two dry-pipe sprinkler system sensors that report to an alarm panel because of an improper wiring of the sensors coupled again with an inadequate testing and examination of those sensors prior to the loss.

Unless requested to do otherwise, this report will conclude the activity of Abvima Engineering, Inc. on this claim and an invoice for services rendered is enclosed. Abvima Engineering, Inc. reserves the right to alter or supplement this report if additional information is provided.

Sincerely,



Richard R. Papetti, P.E.

Enclosures

# Abvima Engineering, Inc.

62 Bay Road

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## FACSIMILE TRANSMISSION SHEET

Date: December 26, 2005To: Erik Loftus, Esq.Company: Law Offices of Stuart G BlackburnFacsimile Number: (860) 292 - 1221From: Rick PapettiNumber of Pages (Including Cover Sheet): 5Subject: Hoden Properties

Erik

Original will be mailed. Thank you

Rick

If the following information is not received in good condition, please call (508) 238-1440. The documents accompanying this telescopy transmission contain confidential or privileged information. The information is meant to be for the use of the individual or entity named on the transmission sheet. If you are not the intended recipient, be aware that any disclosure, copying, distribution, or use of this teledocied information is prohibited. If you have received this telescopy in error, please call (508) 238-1440 immediately so that arrangements can be made for the retrieval of the teledocied documents. Thank you.

**CERTIFICATION**

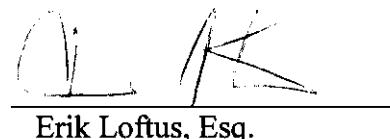
I hereby certify that the foregoing PLAINTIFF FIREMAN'S FUND INSURANCE COMPANY'S RULE 26(a)(2)(A) DISCLOSURE OF EXPERT WITNESS has been mailed this 3rd day of January, 2006, first class mail, postage prepaid to the following:

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Erik Loftus, Esq.